

Condition 23	Geotechnical Reports
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Prior to the commencement of construction for buildings at each proposed facility, the design of each facility shall be based on a facility-specific geotechnical report prepared by a California registered geotechnical engineer and professional geologist. The geotechnical report shall provide seismic data for use with at least the minimum requirements of the California Building Code (2007), as adopted by the County of San Luis Obispo.

Evidence of compliance:

Buildings at the Water Recycling Facility site

Design of the buildings located at the Water Recycling Facility is based on recommendations contained within the project Geotechnical Report prepared by Fugro West, Inc., dated May 23, 2013. The Geotechnical Report referenced above discusses geologic hazards present at the various borings and the seismic design data and parameters needed to design for those hazards. Please note that the seismic data contained in the 2010 California Building Code, referenced in Section 5.2 of the Geotechnical Report, is the basis for design of all buildings as the 2010 California Building Code was adopted after the Coastal permit for the project was approved. The 2007 California Building Code, which is referenced in Condition 23 of the Coastal Permit, is superseded by the 2010 California Building Code. The site-specific design parameters outlined in the report are in accordance with the CBC 2010 and ASCE 7-05.

The recommendations contained within the report are based on site specific soils investigations that were performed are presented in Section 5.2 of the Geotechnical Report.

Section 5.2 of Geotechnical Report (Seismic Considerations)

5.2 SEISMIC CONSIDERATIONS

5.2.1 Seismic Data

Structures should be designed to resist the lateral forces generated by earthquake shaking in accordance with the building code and accepted design practice. This section presents seismic design parameters for use with the 2010 California Building Code (CBC) and ASCE 7-05. The site coordinates and USGS interactive web page (V3.0.1 last updated 2012-07-12) were used to obtain the seismic design criteria. The average shear wave velocity within the upper 100 feet of the site is estimated to be approximately 310 to 335 meters per second, corresponding to a Site D, Stiff Soil Site. The California Building Code proposes a building occupancy category of "III" for wastewater treatment facilities. The peak ground acceleration was estimated for a 2 percent probability of occurrence in 50 years using the USGS 2008 online deaggregation tool.

The CBC also allows any structure to be designed considering a site-specific ground motion hazard analysis. The following presents our site-specific ground motion hazard analysis for the site. The Seismic Data estimated from the site-specific ground motion hazard analysis performed in accordance with Chapter 21 of ASCE 7-05 are generally less than the mapped parameters specified by the seismic design procedure outlined in Chapter 11 of ASCE 7-05. According to Section 11.4.7 of ASCE 7-05, the site-specific ground motion procedures set forth in Chapter 21 are permitted to be used to estimate ground motions for any structure. Therefore, the lower parameters tabulated below and adjusted in accordance with Chapter 21 may be used for any site structure in lieu of the higher parameters tabulated below and based on Chapter 11. The peak ground acceleration was estimated for a 2 percent probability of occurrence in 50 years using the USGS 2008 online deaggregation tool and adjusted in accordance with Chapter 21 of ASCE 7-05. Based on these criteria, the seismic data for use with code-based designs are:

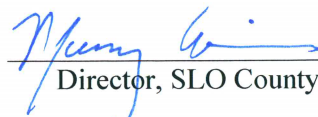
Table 4. Seismic Data

California Building Code (2010)	Seismic Parameter	Mapped Values per Chapter 11	Site Specific Values per Chapter 21
Site Coordinates	Latitude, degrees	35.3082	35.3082
	Longitude, degrees	-120.8005	-120.8005
Section 1613.5.1 Figure 1613.5	S_s , Seismic Factor, Site Class B at 0.2 sec	1.450g	1.450g
	S_1 , Seismic Factor, Site Class B at 1 sec	0.543g	0.543g
	Site Class	S_D Stiff Soil	S_D Stiff Soil
Section 1613.5.3 Table 1613.5.3(1)	F_a , Site Coefficient for Site Class	1.000	1.000
Section 1613.5.3 Table 1613.5.3(2)	F_v , Site Coefficient for Site Class	1.500	1.500
Section 1614A	S_{MS} , Site Specific Response Parameter for Site Class at 0.2 sec	1.450	1.200g
	S_{M1} , Site Specific Response Parameter for Site Class D at 1 sec	0.814	0.652g
	$S_{DS} = 2/3 S_{MS1}$	0.967	0.800g
	$S_{D1} = 2/3 S_{M1}$	0.543	0.434g
-	Peak Ground Acceleration (2% probability in 50 years)	0.55g	0.55g
-	Likely Magnitude (M)	6.8	6.8
ASCE-7-05 Figure 22-15	Long-Period Transition Period (T_L)	8.0 sec	8.0 sec

5.2.2 Design Response Spectra

A ground motion hazard analysis was performed to develop design response spectra for use with the 2010 California Building Code (CBC). The design response spectrum, at 5 percent damping and associated design acceleration parameters are presented on Plate 7a. The adjusted design response spectrum for damping ratios of 0.5, 2 and 5 percent is presented on Plate 7b. The design spectrum corresponds to 2/3 of the estimated MCE in accordance with the 2010 CBC (Chapter 21 of ASCE 7-05). Empirical attenuation relationships such as the one developed by Abrahamson and Silva (2008) allow for the estimation of response spectral ordinates for periods up to 10 seconds. For tank design, spectral ordinates are extrapolated to higher sloshing periods of up to 15 seconds. The spectral values beyond a 10 second period were extrapolated assuming constant spectral displacement.

Condition Satisfied—Treatment Facility


 Director, SLO County Planning
 12/4/13
 Date